Aviation Risk Management to Estimation and Forecasting Share Price of Air France

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Abstract

We use aviation risk management to evaluate and predict share price of Air France in the (Amsterdam, Paris Stock Exchange) for aircraft listed. we think that airline benefits from aviation risk management tool to maintain price list by forecasting and assessing to a reduction of cost, risk and enhance performance share price. This studies and significant contemporary issue relating to the envelopment of a hedge, predict of the price list of air France cost in the stock market. We find evidence tool ARM includes processes that have been assessed in this investigation: correlation coefficients, prediction, forecasting and focused on an analysis of share price of air France examine outcomes showed that the share prices of this airline are correlation coefficient at (0,98) appropriate with this equity of the predicted. lastly, prediction and evaluation add value to Air France .

***Keywords**: air France forecasting ,Share price of air France ,Evaluate price list*

Introduction

Numerous airlines companies search for to increase share price by aviation risk management tools to analysis, forecasting showing the strength and cohesion of stock prices which encourages investors to buy share price and rising index stock exchange, predicting is a very imperative issue for airlines companies and the success of the bosses and firms are much associated with suitable strategies which are collected with accurate future guess. Predicting methods are used in much spaces involves; production, demand, supply chain management, selling, stock exchange, etc .on the other hand after the improvements in the manufacturing of aircraft segment .in the end of the last century, it became the object of prediction is very important for companies, especially commercial airlines and became part of the strategic planning for the aviation risk management. Expectation airlines require a deep study because the airlines are fluctuation environments such as investment, supply, demand and the other air crises thus we should use advanced statistical techniques to predict. (Adams et al , 2014) wrote in the issue prediction for airlines, compared an anticipating efficacy and a relationship between the number of a seat's aircraft travelers who take this seats and a reflection that on the share prices of an airline when higher traveler's leads to higher share price's airlines.(Andrawis et al 2012) suggested the method of self-prediction for airlines through preprocessing, processing, post-processing, see fig .1. To support the three stages of predicting, it may be beneficial to approve an FSS. An FSS is any method that provides for the estimating function within an institute. This is a significant issue but one that has been neglected in the theoretical literature until lately. Progress are debated with propositions for extra investigation and research. The enhancement of expecting processes is one method to an improvement of predicting accurateness. It may be measured in several techniques. In the framework of the share price of an airline, two imperative measures are the bias and adjustment of time

forecast error. These measures, in turn, affect the stock share price and customer service levels of the airline (Stewart,2007). typically the prediction of the airline companies problem with great uncertainty, difficulties, and distress that one of the master sufficiently historical data (Graeber ,2012). Additional one is to main enough substantial and corresponding data of linked history events, as they may have a direct impact on airline status which greatly forecasting efficiency depend on history is reasoning elements will have a profound impact on planning accuracy and improved.

We effort to study a rational method for development of airline industry and aviation services using scientific approaches according to the historical data of the number of international airlines, proposed a Grey forecasting model based on a fuzzy adaptive forecast and analyze the number of the international airlines(Lufthansa Group, 2010).

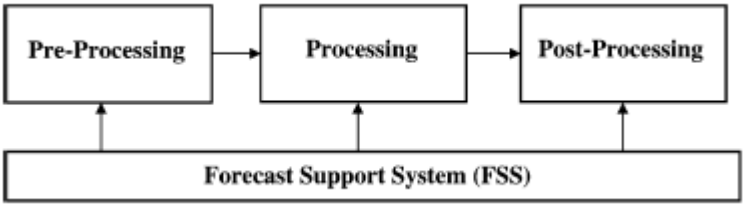

Fig .1 phase of prediction

1-Prediction of Aviation

Predicting is defined as making forecasts about future by using qualitative , quantitative and empirical methods with the help of previous data(Carter et al,2008) Predicting performances are used many spaces counting; supply chain management, manufacture, economy, weather and share price, etc. Particularly, after the advancements in industry of airline and delivering the right products and services in a wide market has become very significant. in order to estimate for the future share price airlines numerous diverse predicting methods are advanced in due time(ATA 2009) . In a paper which examines the progresses in the anticipating field over the last 30 years by investigative the forecasting books, the improvement of the predicting is observed. In this search found that the usage of SPSS software packages, judgmental, econometric and methods are increasing which It is one of the tools of aviation risk management .

1-1 Demand Predicting at Airplane

By the growing competitiveness in the aircraft companies segment, predicting ,estimated becomes a main tool for carriers firms. The predicting areas that are being used in commercial airline segment are; airport traveler capacity predicting, carrier road traffic predicting, traveller booking, seat forecasting, airplane extent predicting linked to the seat , important in our study is the prediction and evaluation of the air France share price .

1-2 Share price Stock market and framework

(Eaves, 2002) presented Parametric methods to predicting rely upon predict of some primary share price distribution parameters, especially the variance and mean price Morrell, et al (2010) proposed the simulation method to predict airline stock prices by the non-

parametric method by studying the variables that affect stock prices. However, we offer Stock market performance of air France in summary.

Air France is recorded for trading on the Amsterdam, Paris stock markets (Euronext Amsterdam, Paris) below the ISIN code FR0000031122. The stock is an element of the CAC Mid 60 index and involved in the leading maintainable enlargement and shareholder employee indices. For the eleventh year successively, Air France is included in the Dow Jones Sustainability Indexes and is group Commerce Leader of the "Aircraft companies" segment by Robeco SAM. Additionally, for the seventh year, the Group is leader of the "Carriage" segment. Subsequent a increase at the end of 2015, the Air France price list primarily increased 23% between January and March 2016 before down 34% as of March 2016 when the stocks had closed at their high of €8.62. Ended the 2016 first half price list fell by 18.5% while the CAC 40 announced a 8.6% collapse. See Table 2

	January-June 2016	2015
Share price high *(In €)*	8.84	8.50
Share price low *(In €)*	5.48	5.51
Number of shares in circulation	300,219,278	300,219,278
Market capitalization at the end of the period *(In € billion)*	1.7	2.1

Table . 2. Air France share price Jan-Jun 2016 -2015

Prediction is an important and fundamental objective for airlines that must examine all variables that affect performance, for example the United Kingdom's choice to withdraw from the (EU) in the first half of 2016, plunges many economic sectors, including air carriage, into instability. In the medium term, there should be a limited economic go-slow in the Eurozone (includes Air France) but a important decline in UK growth, with repercussions for air transportation in Europe. IATA assessments that traffic in (EU) 2020 could be some 3% to 5% . In latest months, the geopolitical and economic climate has continued to consider on air carriage demand. Air passage demand has dropped in a number of key markets like Brazil, Japan due to the worsening in the economy, in, which has been harmfully impacted of many journeys to EU. In 2016, IATA is thus predicting a 6.5% rise in volume for the European carriers compared with 8% for the other airlines .The three European groups are mainly increasing through their low-cost companies (Transavia , german wings, etc), the competition in its own markets due to the attractiveness and hub of their dual Paris-CDG and Amsterdam-Schiphol Central (5.1% for France,7.2% for the Netherlands). The oil price is again rising in the first quarter of 2017, the Brent price averaged $55 a barrel, forecasts for that may be affected on price list of airlines because fluctuation of oil price

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Methodology

The first step begins by analysis and evaluation of Air France by studying the history of this company. In 20-9-2014 pilots in Air France Airlines strike to demand work reform and improve wages for two weeks, which led to the loss of the company to 25 million dollars a day. This strike contributed by the pilots in Air France led to a decline in the prices of this company, where the share price at 13.22 while the price before the strike at 13.79 in 2014-9-12, two weeks later the strike, the share price was at 11.47, however Air France should have an emergency reserve to front lower stock prices to maintain the market value of the company. The technical method that we use in this search is a pattern Fisher to

measurement the return on stocks market at the rate of strike and the way for the safe return of these price list. we use be measure Abnormal returns for an interval of 30 days after the airline strike to 30 days before the pilots' strike . compute of abnormal returns by model market model that can be specific which compute the normal returns.

By this model:

$AR_it = \alpha + \beta_i Rmt$ ….. (1)

Where :

AR_it = the prediction variable (dependent variable)

α = the constant Fixed coefficient of the regression

β = the coefficient of the regression

Rmt =variable of market index at time t (independent variable)

The application of the Fisher model in this test of the shares of France Air after the strike of the pilots result (-0.015), the negative signal indicates the decline in stock prices, the value indicates the decline. The stock market recorded 13.38 EUR before the strike, while the stock index recorded a two-day strike at 12.90 EUR . the alfa coefficient of the regression at(-0.012), Bi = the beta coefficient of the regression at (0.009) ,zero date at (0.003) is the day of strike and price list at 13.22 EUR .

ANALYSIS OF VARIANCE (ANOVA)

Source of variance	Sum of Squares	df	Mean Square	F	Sig.
Regression	2676.9	1	2676.9	4027.799	.000[a]
Residual	840.062	1264	0.665		
Total	3516.963	1265			

$$r = \frac{\sum_{i=1}^{n} (xi - \bar{x})(yi - \bar{y})}{(n-1) S_x S_y} \qquad (2)$$

Where:

r = Pearson Correlation Coefficient

X_i= open price variable

Y_i= close price variable

S= Standard Deviation

n= sample size

r = 0.872

Coefficientsa		Unstandardized Coefficients		Standardized Coefficients		
			Std. Error	Beta	t	Sig.
1	(Constant)	α =-1.239	0.131		-9.439-	0
	OPEN	ß=0.617	0.01	0.872	63.465	0

a. Dependent Variable: CLOSE

The second step in the analysis and valuation We use correlation model Pearson to know the strength and interconnect prices of Air France. We use the Pearson correlation coefficient model by 1270 observations for five years. We finding the correlation

coefficient at (0,98) it is very close to the ideal value number(one) that means the prices are strongly correlated in the absence of emergency crisis .

The third step locate to forecast share price of air France , predicting is a procedure of measuring of aircraft companies a future event by audition historical records .The past statistics are systematically collective in a automatically method to find the assessment of the future. Evaluations and forecast are never completely exact and will always deviate from the actual value. We utilize a two-step procedure to estimate of a prediction, let us assume the time series goal value

$$SSE = \sum_{i=1}^{n} (Yi - \hat{Y})^2 \qquad (3)$$

Where :

Yi = value of close price for depend variable

$\hat{Y}$ = value of close price for prediction depend variable

The different between the sum of the squared deviations (SSE) of the forecasted value compared to the target value, thus, a time series with more terms implicitly has a bigger error and a comparison of the quality of different time series forecasts is not feasible . to overcome this situation,one can use the mean value of this error:

$$MSE = \frac{\sum_{i=1}^{n} (Yi - \hat{Y})^2}{n - k - 1} = \frac{\sum_{i=1}^{n} (Yi - \hat{Y})^2}{n - 2} \quad , \quad where \quad k = 1 \qquad ..... \quad (4)$$

The first step in the forecasting of Air France The model is estimated by the company's share price data for the years (2012,2013,2014,2015) by (1270) observations , we utilized E_ views program Which shows us the share price of the company to decline due to fluctuations in the work environment both internal factors or external factors and then start to rise starting in (2017) after the improvement of the investment environment and the air labor market . see fig (2)

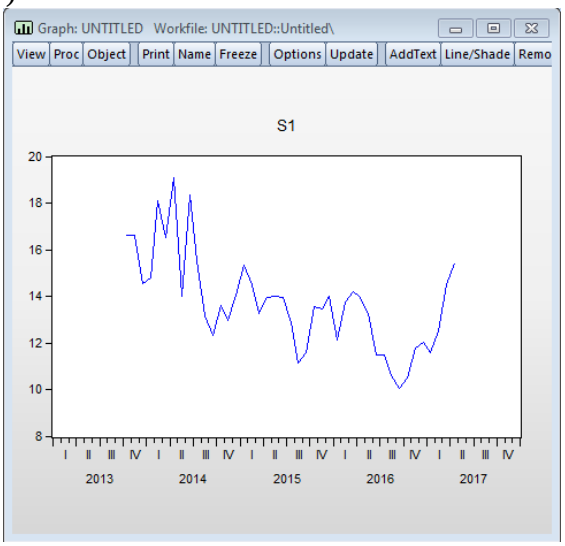

Fig (2) index of air France

The second step in estimating the price list model on Air France for the years(2018, 2019)is using the Eviews Prediction Program. we using the equation (4), (5) and conducting the financial analysis of the prices of France's shares for the years (2013,2014,2015,2016) by (1750) observations, the forecast results for the years were obtained (2018,2019) see table (2), fig (3).

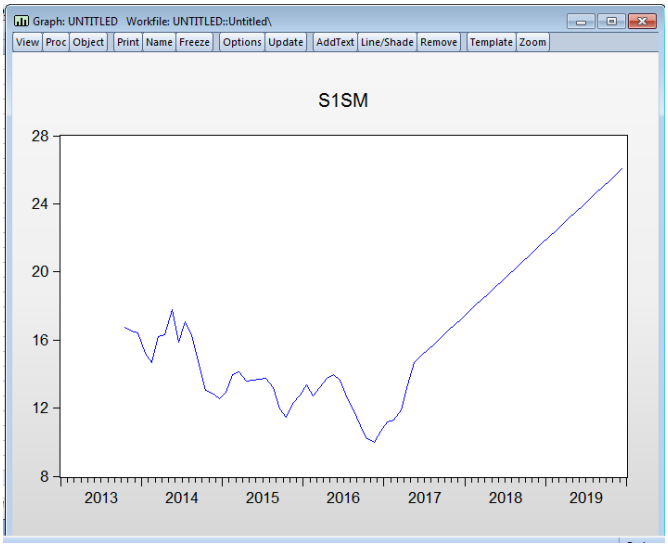

Fig (3) forecast of Air France

Predictive values of Price's Air France listed in the financial markets represent the hypothetical status of these prices, we must study the internal and external-variables that may occur and have an impact on these prices .

2018: first quarter	18 EUR
2018: second quarter	20 EUR
2018: third quarter	21 EUR
2018: fourth quarter	23 EUR
2019: first quarter	23 EUR
2019: second quarter	24 EUR
2019: third quarter	25 EUR
2019: fourth quarter	26 EUR

Table :2 prediction of Air France' share price

Table (2) shows the price values in the global stock markets France's aviation for years (2018,2019) which tend to rise with attention to the variables that may affect the prices of shares of Air France.

Conclusion

A prediction is an important tool of aviation risk management, provides an information base for senior management in airlines in strategic and phased planning. In this research, we used data from France Air for the analysis and forecast of the period (2012,2013,2014,2015,2016) by (1270) observation as well as utilized the Eviews software statistical program in analyzing the price list of Air France. The finding indicate that the correlation coefficient was consistent at (0,98) , the index for the price of Air France's stock market in a year (2018,2019) tends to rise .Aviation Risk Management is considering France Air of all divisions, important in this research is to focus on the financial position of the company because it maintains the continuity of Air France in the capital market As well as the study of internal and external variables that may affect the financial position, as happened in a strike pilots company in 2013, which led to a drop in the share price of Air France. We believe that aviation risk management is doing a vital company .

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